## LIST OF TABLES

<u>Table</u>		<u>Page</u>
I-1.	National Ambient Air Quality Standards	I-5
I-2.	Prevention of significant deterioration increments (in μg/m³)	I-6
I-3.	Sensitivity classes for conifers in relation to ozone exposure.	I-10
I-4.	Sensitivity classes for hardwoods in relation to ozone exposure	
I-5.	Sensitivity classes for lichens based on prolonged exposure	I-12
I-6.	Visibility monitoring in Class I National Parks of the central Rocky Mountain,	
	northern Rocky Mountain, and northern Great Plains regions	I-15
I-7.	Operational particle and optical monitoring sites of the IMPROVE monitoring network	
	March 1988 through February 1995 by geographic region	I-22
I-8.	Seasonal and annual average reconstructed light extinction (Mm <sup>-1</sup> ) apportioned by	
	general category for the central Rocky Mountain, northern Rocky Mountain, and	
	northern Great Plains regions (March 1988 through February 1995)	I-23
I-9.	Contributions of various types of fine particles (Mm <sup>-1</sup> ) to the total seasonal and	
	annual average non-Rayleigh aerosol light extinctions for the central Rocky	
	Mountain, northern Rocky Mountain, and northern Great Plains regions (March	
	1988 through February 1995)	I-24
I-10.	Measured fine and coarse aerosol mass concentrations (in μg/m³) for the central	
	Rocky Mountains, northern Rocky Mountains, and northern Great Plains (March	
	1988 through February 1995).	
II-1.	Projected population growth in Rocky Mountain and Northern Great Plains states	II-6
II-2.	Annual emissions of SO <sub>2</sub> for Rocky Mountain and northern Great Plains states in	
	1994 (1000 short tons)	II-12
II-3.	Annual emissions of NO <sub>x</sub> for Rocky Mountain and northern Great Plains states in	11.40
11.4	1994 (1000 short tons)	II-13
II-4.	Annual emissions of VOCs for Rocky Mountain and northern Great Plains states in 1994 (1000 short tons)	11 1 1
II-5.	Current air quality monitoring in Rocky Mountain and northern Great Plains	11-14
11-5.	National Parks	II 10
III-1.	1994 emissions (tons/year) within 140 km of ROMO	
III-1.	Synoptic snow survey data at ROMO sites in March and April, 1995	
III-2 III-3.	Wetfall chemistry at the NADP/NTN site at Beaver Meadows	
III-3. III-4.	Wetfall chemistry at the NADP/NTN site at Loch Vale.	
III- <del>5</del> .	Wet deposition (kg/ha/yr) of S and N at the NADP/ NTN site at Loch Vale	
III-6.	Wet deposition (kg/ha/yr) of S and N at the NADP/NTN site at Eoch vale	
III-7.	Comparison of annual volume-weighted mean concentrations for NH <sub>4</sub> <sup>+</sup> , NO <sub>3</sub> , and	
	total annual loading of inorganic N from selected NADP sites, 1991-1994	III-12
III-8.	Water budget and volume-weighted mean (VWM) chemical concentrations in the	
0.	snowpack (seasonal), precipitation (seasonal and annual), and stream water (annual)	in the
	Loch Vale watershed III-13	0
III-9.	Summary of ROMO ozone concentrations (ppbv) from NPS monitoring sites	III-16
III-10.	Weekly average ozone concentrations (ppbv) at passive sampling sites in ROMO	
III-11.	Maximum and mean SO <sub>2</sub> 24-hour integrated sample. The clean-air reference is	10
	estimated to be 0.19 ppbv	III-20
III-12.	Additional air quality monitoring on federal lands in the central Rocky Mountains	III-20
III-13.	Population statistics for ANC, CB, SO <sub>4</sub> <sup>2-</sup> , DOC, and SO <sub>4</sub> <sup>2-</sup> -CB for wilderness lakes	20
10.	within selected geomorphic units of the West compared with two major park areas	
	in the East and the Midwest	.    -22
III-14.	Results of lakewater chemistry analyses by the Western Lake Survey for selected	<i>LL</i>
1-7.	variables in Rocky Mountain National Park and adjacent areas	111-23
III-15	Mean ionic concentrations of sampled streams and rivers in ROMO watersheds.	

<u>Table</u>		<u>Page</u>
III-16.		
	by cation concentrations and pH of water samples	III-29
III-17.	Vascular plant species of ROMO with known sensitivities to sulfur dioxide, ozone	
	and nitrogen oxides	
III-18	Lichen species of ROMO with known sensitivities to ozone and SO <sub>2</sub>	III-43
III-19.	Seasonal and annual average reconstructed extinction (Mm <sup>-1</sup> ) and standard visual range (km), ROMO, Colorado, March 1988 through February 1995 1995	III-46
III-20.	Seasonal and Annual Arithmetic Means ROMO, Colorado Transmissometer Data	
	(Filtered) March 1988 through February 1995	III-50
III-21.	Seasonal and Annual 10% (Clean) Cumulative Frequency Statistics ROMO	
	Transmissometer Data (Filtered) March 1988 through February 1995 1995	III-51
IV-1.	Species of zooplankton collected during the summers of 1982 and 1983 from 70	
	small lakes in Grand Teton National Park	IV-7
IV-2.	Point sources of SO <sub>2</sub> , NO <sub>x</sub> , and VOC in tons per year (annual emissions	
	exceeding 100 tons per year of at least one pollutant) within 150 km of GRTE	IV-9
IV-3.	Wetfall chemistry at the NADP/NTN site at Tower Junction, YELL	IV-11
IV-4.	Wet deposition (kg/ha/yr) of sulfur and nitrogen at the NADP/NTN site at Tower	
	Junction, YELL	IV-11
IV-5.	Monthly average ozone levels (ppbv) in GRTE for 1995 determined with	
	passive ozone samplers	IV-12
IV-6.	Water quality data collected in 1995 by Miller and Bellini (1996) in mountain lakes	
	of GRTE.	IV-13
IV-7.	Results of lakewater chemistry analyses by the Western Lake Survey for selected	
I) / O	variables in GRTE and adjacent areas	IV-14
IV-8.	Selected characteristics of dilute lakes and ponds (specific conductance ≤	D / 40
N/ 0	10 μS/cm) in GRTE surveyed by Gulley and Parker (1985)	IV-16
IV-9.	Descriptive statistics for chemical data from 46 alpine lakes in GRTE (surface	11/47
IV-10.	waters only)	
IV-10.		
V-1.	Point sources (tons/yr) of SO <sub>2</sub> , NO <sub>x</sub> , and VOC (annual emissions exceeding 100	۱۷-22
V-1.	tons/yr of at least one pollutant) within 150 km of YELL	V/ 0
V-2.	Wetfall chemistry at the NADP/NTN site at Tower Junction, YELL	
V-2. V-3.	Wet deposition (kg/ha/yr) of sulfur and nitrogen at the NADP/NTN site at Tower	V - I I
v-J.	Junction, YELL	\/-12
V-4.	Summary of YELL ozone concentrations (ppbv) from NPS monitoring sites	V-13
V-5.	Maximum and mean SO <sub>2</sub> 24-hour integrated sample	V-13
V-6.	Snowmachine usage levels and chemical concentrations (µeq/L) at snow-sampling	
	sites in YELL	V-14
V-7.	Data on selected variables for the five lakes and streams in the YELL database	
	that had measured pH less than 5.5	V-15
V-8.	Results of lakewater chemistry analyses by the Western Lake Survey for selected	
	variables in YELL and adjacent areas	V-16
V-9.	Total alkalinity and fish population status for lakes having ANC < 200 μeq/L in YELL	V-18
V-10.	Seasonal and annual average reconstructed extinction (Mm <sup>-1</sup> ) and standard visual	
	range (km), YELL, March 1988 through February 1995	V-20
V-11.	Seasonal and annual arithmetic means for YELL, transmissometer data (filtered)	
	July 1989 through July 1993	V-24
V-12.	Seasonal and annual 10% (Clean) cumulative frequency statistics for YELL,	
	transmissometer data (filtered) July 1989 through July 1993	V-25

<u>Table</u>		<u>Page</u>
V-13.	Plant species of YELL with known sensitivities to sulfur dioxide, ozone and nitrogen	
	oxides. (H=high, M=medium, L=low, blank=unknown)	V-31
V-14.	Lichen species of YELL with known sensitivity to SO <sub>2</sub> and ozone	V-33
VI-1	Emissions of SO <sub>2</sub> , NO <sub>x</sub> , and VOC (tons/yr) from point sources emitting greater than	
	100 tons/yr. Montana counties are included that lie within 200 km of GLAC	VI-5
VI-2.	Wetfall chemistry at the NADP/NTN site at Apgar, GLAC.	
VI-3.	Wet deposition (kg/ha/yr) of sulfur and nitrogen at the NADP/NTN site at Apgar,	
	GLACGLAC	VI-8
VI-4.	Summary of GLAC ozone concentrations (ppbv) from NPS monitoring sites	
VI-5.	Yearly 24-hour average fluoride concentrations in GLAC.	
VI-6	Results of lakewater chemistry analyses by the Western Lake Survey for selected	۷1 10
V1 0	variables in GLAC and adjacent areas	\/I <b>-</b> 14
VI-7.	pH measurements in lakes within GLAC, from NPS data base.	
VI-7.	Maximum fluoride concentrations in foliage samples from GLAC, southwestern	v I- 1 J
V I-O.	region downwind of Columbia Falls Aluminum Company (ppb by weight)	\/I <sub>-</sub> 16
VI-9.	Seasonal and annual average reconstructed extinction (Mm <sup>-1</sup> ) and standard visual	V I- I O
V 1-3.	range (km) at GLAC, March 1988 through February 1995	\/  21
VI-10	Seasonal and annual arithmetic means GLAC, Montana transmissometer data	V I-Z I
VI-10	(filtered) March 1989 through February 1995	\/  25
\/  44		V I-25
VI-11.	Seasonal and annual 10% (Clean) cumulative frequency statistics GLAC,	\/I 00
\/  40	transmissometer data (filtered) March 1989 through February 1995	VI-26
VI-12.	Plant species of GLAC with known sensitivities to sulfur dioxide, ozone and	\// 04
\ /I 40	nitrogen oxides	
	Lichen species of GLAC with known sensitivity to SO <sub>2</sub> and ozone	
	Classification of visual injury of fluoride in conifers	
	Vegetation classes in THRO	
VII-2.	Wetfall chemistry at the NADP/NTN site at THRO	
VII-3.	Wet deposition (kg/ha/yr) of sulfur and nitrogen at the NADP/NTN site at THRO	
VII-4.	Gaseous monitoring data collected at the North (N) and South (S) Units of THRO	
VII-5.	Summary of THRO ozone concentrations (ppbv) from NPS monitoring sites	
VII-6.	SO <sub>2</sub> and H <sub>2</sub> S concentrations at THRO from 1987 to 1995	VII-15
VII-7.	SO <sub>2</sub> and H <sub>2</sub> S concentrations (ppbv) from the special purpose monitoring site in	
	the Whiskey Joe oil field near the South Unit of THRO	VII-16
VII-8.	Summary of mean sulfur concentra-tions in the moss Abietinella abietina from	
	the North and South Units of THRO and the nearby Lone Butte oil field	VII-22
VII-9.	Plant species of THRO with known sensitivities to $SO_2$ , ozone, and $NO_x$ . L = low,	
	M = medium, H = high, none = unknown	VII-25
VII-10.	Lichen and bryophyte species of THRO with known sensitivities to SO <sub>2</sub> and ozone	
VIII-1.	Wetfall chemistry at the NADP/NTN site near WICA	
VIII-2.	Wet deposition (kg/ha/yr) of sulfur and nitrogen at the NADP/NTN site near WICA	
VIII-3.	Plant species of WICA with known sensitivities to SO <sub>2</sub> , ozone, and NO <sub>x</sub>	
VIII-4.	Lichen species of WICA with known sensitivities to SO <sub>2</sub> and ozone	VIII-11
IX-1.	Wetfall chemistry at the NADP/NTN site near BADL	
IX-2.	Wet deposition (kg/ha/yr) of sulfur and nitrogen at the NADP/NTN site near BADL	IX-6
IX-3.	Summary of BADL ozone concentrations (ppbv) from NPS monitoring sites	
IX-4.	Maximum and mean SO <sub>2</sub> 24-hour integrated sample for BADL	IX-7
IX-5.	Seasonal and annual average reconstructed extinction (Mm <sup>-1</sup> ) for BADL, March	
	1988 through February 1995	IX-9
IX-6.	Seasonal and annual arithmetic means transmissometer data (filtered) for BADL,	
	March 1988 through February 1995	IX-13
	· · · · · · · · · · · · · · · · · · ·	_

<u>Page</u>

<u>Table</u>

IX-7.	Seasonal and annual 10% (clean) cumulative frequency statistics transmissometer	
	data (filtered) for BADL, March 1988 through February 1995	IX-14
IX-8.	Plant species of BADL with known sensitivities to $SO_2$ , ozone, and $NO_x$ . L = low,	
	M = medium, H = high, none = unknown	IX-20
IX-9.	Lichen species of BADL with known sensitivities to SO <sub>2</sub> and ozone	IX-21